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WE CLAIM:

1. A method comprising:

at a wireless relay:

during time slots of a first slot type, receiving communications on a first frequency band and transmitting communications on a second frequency band;

during time slots of a second slot type that do not overlap with said time slots of the first type, receiving communications on the second frequency band and transmitting communications on the first frequency band.

2. A method according to claim 1 wherein:

during time slots of the first slot type:

said receiving comprises receiving communications from a transceiver of a first transceiver type on the first frequency band and said transmitting comprises transmitting communications to the transceiver of the first transceiver type on the second frequency band;

during time slots of the second slot type:

said receiving comprises receiving communications from at least one transceiver of a second transceiver type on the second frequency band and said transmitting comprises transmitting communications to at least one transceiver of the second transceiver type on the first frequency band.

3. A method according to claim 1 further comprising:

at the wireless relay during time slots of a third slot type, transmitting substantially nothing.

4. A method according to claim 3 comprising operating in a defined sequence of time slots of the first, second and third slot types.

5. A method according to claim 1, wherein receiving communications on the first frequency band, transmitting communications on the second frequency band, receiving communications on the second frequency band and transmitting communications on the first frequency band are all done using a single transceiver chain.

6. A method according to claim 5 further comprising:

between a slot of said first slot type and a next slot of said second slot type, reconfiguring the single transceiver to behave like a transceiver of a first transceiver type;

between a slot of said second slot type and a next slot of said first slot type, reconfiguring the single transceiver to behave like a transceiver of a second transceiver type.

7. A method according to claim 6 wherein:

reconfiguring the single transceiver to behave like a transceiver of the first transceiver type comprises connecting a first and second frequency signal for upconversion and downconversion respectively;

reconfiguring the single transceiver to behave like a transceiver of the second transceiver type comprises connecting the second and first frequency signal for upconversion and downconversion respectively.

8. A method according to claim 7 wherein:

reconfiguring the single transceiver to behave like a transceiver of the first transceiver type further comprises connecting a first filter and a second filter for receive and transmit filtering respectively;

reconfiguring the single transceiver to behave like a transceiver of the second transceiver type further comprises connecting the second filter and the first filter for receive and transmit filtering respectively.

9. A method according to claim 6 wherein the transceiver of the first transceiver type is a user equipment and the transceiver of the second transceiver type is a base station transceiver.

10. A method according to claim 6 wherein the transceiver of the first transceiver type is a network access node, and the transceiver of the second transceiver type is a base station transceiver.

11. A method according to claim 2 further comprising:

during time slots of said first slot type, the transceiver of the first type communicating bi-directionally with the wireless relay;

during time slots of said second slot type, at least one transceiver of the second type communicating bi-directionally with the wireless relay;

during time slots of a third slot type, the transceiver of the first type communicating directly bi-directionally with at least one transceiver of the second type.

12. A method according to claim 1 wherein all communications are OFDM (Orthogonal Frequency Division Multiplexing) communications.

13. A method according to claim 1 further comprising:

defining a first umbrella frequency band and a second frequency umbrella band;

during slots of both said first slot type and said second slot type, communicating directly from a transceiver of a first transceiver type and at least one transceiver of a second transceiver type on the first umbrella frequency band, and communicating directly from at least one transceiver of the second transceiver type and the transceiver of the first transceiver type on the second umbrella frequency band.

14. A method according to claim 13 wherein:

during time slots of the first slot type:

the wireless relay receives communications from the transceiver of the first transceiver type on the first frequency band and transmits communications to at least one transceiver of the second transceiver type on the second frequency band;

during time slots of the second slot type:

the wireless relay receives communications from at least one transceiver of the second transceiver type on the second frequency band and transmits communications to at least one transceiver of the second transceiver type on the first frequency band.

15. A method according to claim 13 wherein:

the first frequency band and the first umbrella band are adjacent and collectively comprise an uplink frequency band;

the second frequency band and the second umbrella band are adjacent and collectively comprise a downlink frequency band.

16. A method according to claim 13 comprising operating in a defined sequence of time slots of the first and second type.

17. A method according to claim 13, wherein receiving communications on the first frequency band and transmitting communications on the second frequency band, receiving communications on the second frequency band and transmitting communications on the first frequency band are all done using a single transceiver chain.

18. A method according to claim 17 further comprising:

between a slot of said first slot type and a slot of said second slot type, reconfiguring the single transceiver to behave like a transceiver of said first transceiver type;

between a slot of said second slot type and a slot of said first slot type, reconfiguring the single transceiver to behave like a transceiver of said second transceiver type.

19. A method according to claim 18 wherein:

reconfiguring the single transceiver to behave like a transceiver of the first transceiver type comprises connecting a first and second frequency signal for upconversion and downconversion respectively;

reconfiguring the single transceiver to behave like a transceiver of the second transceiver type comprises connecting the second and first frequency signal for upconversion and downconversion respectively.

20. A method according to claim 19 wherein:

reconfiguring the single transceiver to behave like a transceiver of the first transceiver type further comprises connecting a first filter and a second filter for receive and transmit filtering respectively;

reconfiguring the single transceiver to behave like a transceiver of the second transceiver type further comprises connecting the second filter and the first filter for receive and transmit filtering respectively.

21. A method according to claim 18 wherein the first transceiver type is a user equipment and the second transceiver type is a base station transceiver.

22. A method according to claim 18 wherein the first transceiver type is a network access node, and the second transceiver type is a base station transceiver.

23. A method according to claim 13 wherein all communications are OFDM (Orthogonal Frequency Division Multiplexing) communications.

24. A method according to claim 23 wherein:

the first umbrella band and the first frequency band together comprise a first OFDM band;

the second umbrella band and the second frequency band together comprise a second OFDM band.

25. A method comprising:

at a wireless relay node:

during time slots of a first slot type, receiving communications on a first frequency band from a transceiver of a first transceiver type;

during time slots of a second slot type, transmitting communications on the first frequency band to the transceiver of the first transceiver type;

during time slots of a third slot type, receiving communications on the first frequency band from at least one transceiver of a second transceiver type;

during time slots of a fourth slot type, transmitting communications on the first frequency band to at least one transceiver of the second transceiver type.

26. A method according to claim 25 further comprising:

during slots of said first slot type, said second slot type, said third slot type and said fourth slot type, communicating directly from the transceiver of the first transceiver type and at least one transceiver of the second transceiver type on a second frequency band, and communicating directly from at least one transceiver of the second transceiver type and the transceiver of the first transceiver type on a third frequency band.

27. A method according to claim 26 comprising operating in a defined sequence of time slots of the first, second, third and fourth slot type.

28. A method according to claim 26 wherein the first transceiver type is a user equipment and the second transceiver type is a base station transceiver.

29. A method according to claim 26 wherein the first transceiver type is a network access node, and the second transceiver type is a base station transceiver.

30. A method according to claim 25 wherein all communications are OFDM (Orthogonal Frequency Division Multiplexing) communications.

31. A method according to claim 30 wherein the second frequency band is a first OFDM band, and the first and third frequency bands together comprise a second OFDM band.

32. A wireless relay adapted to implement a method according to claim 1.

33. A system comprising a wireless relay, a transceiver of a first type, and at least one transceiver of a second type collectively adapted to implement a method according to claim 1.

34. A system comprising a wireless relay, a transceiver of a first type, and at least one transceiver of a second type collectively adapted to implement a method according to claim 11.

35. A system comprising a wireless relay, a transceiver of a first type, and at least one transceiver of a second type collectively adapted to implement a method according to claim 13.

36. A wireless relay adapted to implement a method according to claim 25.

37. A system comprising a wireless relay, a transceiver of a first type, and at least one transceiver of a second type collectively adapted to implement a method according to claim 26.

38. A wireless relay comprising:

a receive chain;

a transmit chain;

a first frequency filter and a second frequency filter alternatively switchable such that either the first frequency filter filters for the receive chain and the second frequency filter filters for the transmit chain, or the second frequency filter filters for the receive chain and the first frequency filter filters for the transmit chain;

a first frequency source and a second frequency source alternatively switchable such that either the first frequency source is connected to the receive chain and the second frequency source is connected to the transmit chain, or the second frequency source is connected to the receive chain and the first frequency source is connected to the transmit chain.

39. A wireless relay according to claim 38 comprising a first two by two switch which in a first state connects the first frequency source to the receive chain and connects the second frequency source to the transmit chain, and in a second state connects the second frequency source to the receive chain and connects the first frequency source to the transmit chain.

40. A wireless relay according to claim 39 comprising a second two by two switch which in a first state connects the first frequency filter to the receive chain and connects the second frequency filter to the transmit chain, and in a second state connects the second frequency filter to the receive chain and connects the first frequency filter to the transmit chain.

41. A wireless relay according to claim 40 wherein the first and second two by two switches each comprise a respective plurality of SPST (Single Pole Single Throw) switches.

42. A wireless relay according to claim 41 wherein each SPST switch comprises switching elements selected from a group consisting of: PiN diode, MEMS (Micro Electromechanical Systems) device, and high power FET.